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ABSTRACT

The study makes use of Rotter's (1966) hypothesis that there are consistent individual differences between people who believe in the internal control of reinforcement and those who believe in the external control of reinforcement. Students who are "internals" will believe that their behavior controls academic successes and failures and may, resultantly, participate more actively in class or allow adequate time for study. Externals are less likely to engage in such behaviors since they are not inclined to see their actions as having such effects on success or failure. Two separate investigations are reported which tested the proposition that students who act to maximize their chances of classroom success are more likely to be internal rather than external. Results of the first test, in which 499 introductory psychology students participated, indicated that, at the end of the course, internals had earned significantly more credit than externals. In the second test, using 169 comparable students, more internals were selected as high class participators than were externals. The hypothesis, thus, receives strong support. (TL)

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Internal vs. External Control and Two Examples of ~~College~~ Classroom Behavior

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As a student experiences success and failure during his college career, he can perceive that these events occur predominantly as a result of his own behavior, or predominantly as a result of factors beyond his control. One consequence of these diverse perceptions might be that when the student who believes that his behavior controls his successes and failures is in the classroom, he will engage in behaviors which he believes are instrumental to his attainment of success. He might participate actively in class, and make sure that he has adequate time to study for exams. In contrast, the student who believes that his actions have little actual effect upon his success or failure might be less likely to engage in such behaviors.

Rotter (1966) has hypothesized that consistent individual differences exist among people in the degree to which they are likely to attribute personal control to reward in the same situation. Individuals attributing a high degree of personal control to reward attainment are characterized as having a belief in the internal control of reinforcement; those attributing a low degree of personal control to reward attainment are characterized as having a belief in the external control of reinforcement.

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CG 006 605

In order to measure internal vs. external control as an individual difference variable, Rotter and his colleagues developed the I-E Scale. Among the most important studies supporting the construct validity of the scale, (Rotter, 1966; Lefcourt, 1966; Hersch & Scheibe, 1967) have been those demonstrating relationships between the variable, as measured by the scale, and the attempt of people to control their environment in important life situations. For example, in investigations into Negro activity in behalf of their own civil rights, Gore and Rotter (1963) found that Negro students who were willing to join a freedom march or a freedom riders' group ~~were~~ showed attitudes favoring internal control significantly more ~~internal~~ than did those unwilling to do so. In a similar but separate study on a different population, Strickland (1963) found that black activists were significantly more internal than matched non-activists.

For students, there are few situations more important than the classroom. Consequently, one would expect that those students who make a point of acting in various ways which maximize their chances for success in the classroom would, as a group, be more internal than their counterparts who do not engage in such behaviors. The present study describes two separate tests of this proposition, both using introductory psychology students at a state university as subjects.

The first test took advantage of the fact that at the University of Connecticut, introductory psychology students are required to participate as subjects in the ongoing research of the department. They are required to put in two hours to pass

the course, and they are given the option of accumulating as much as three additional hours for extra credit. Throughout the term, students are left, in general, to their own initiative to sign up for experiments, usually having the choice of many convenient sign-up sheets. It was predicted that at each of two cut-off dates, chosen beforehand because of their special significance during the term, internal students will have participated in more experimental hours than external students.

The second test took advantage of the requirement that all introductory students attend small recitation sections taught by graduate assistants, in addition to attending the large lecture sections taught by professors. Primarily, the recitation section provides the student with an opportunity to enrich his understanding of lecture material. Grades in the recitation section comprise 20% of the students' total grade in the introductory psychology course. Although the graduate assistants used examinations as the prime factor in their determination of recitation grades, they reported that class participation was taken into account, especially for students on the borderline between two grades. It was predicted that if the assistants were asked to choose from their students those who participated most and least in class discussion, the former group would consist of more internals as opposed to externals, than the latter group.

Method

Test 1: At the end of the term, students' experimental cards were obtained from the graduate assistant in charge of experimental credit. Information available on these cards included the number of hours credited for each experiment a student participated in, as well as the date of each of these experiments. The I-E Scale had been administered to all introductory students at the beginning of the term. The final sample consisted of 499 students, for whom we had both experimental cards and I-E scores were available.

Two important cut-off dates were then chosen. The first date was April 5. It was judged pivotal because it was the day before the Easter vacation, as well as approximately the halfway point in the term. May 2 was chosen as the second cut-off date. This was the last day before the last two weeks of the spring term, a hectic two week period during which introductory students rush to obtain the number of credits with which they want to finish the term, and experimenters agitatedly attempt to complete the samples for their experiments. For each date, our the sample was divided at the medians for both I-E and cumulative experimental hours.

Test 2: Class lists were obtained for each recitation section. Next to the column of names, we were added two additional columns labeled "Hi Participator" and "Lo Participator." Two weeks before the end of the term, assistants were given lists for each of their classes, and were requested to check off in the proper

column five students who fit each category. Assistants were further advised that if five students could not be chosen, lesser numbers were also acceptible. The final sample consisted of 169 students, each having been named by his teacher, and each with his I-E score available. Internals and externals were again determined by dividing scores for the sample at the median.

Results and Discussion

Test 1: Results were determined by means of a chi-square analysis with 1 df. Results of the first analysis using April 5 as a cut-off date were non-significant. Results of the May 2 analysis appear in Table 1. As predicted, as of May 2, more internals than externals had acted to acquire a high level of credit hours, rather than take their chances during the two week period subsequent to this date.

Insert Table 1 about here

The failure of April 5 to produce significant results would appear to be mainly attributable to its relatively early occurrence during the term. Although important as a calendar date, marking the beginning of Easter vacation, it was probably too early in the term for students to worry about reaching intended levels of experimental credit, internal vs. external control notwithstanding.

Test 2: The results of our second test appear in Table 2. As predicted, the results demonstrate that of those students chosen as high class participators by their discussion section teachers, more were internals rather than externals; more of the low participators were externals rather than internals.[1]

Insert Table 2 about here

Taken together, both tests give strong support to the proposition that internal students are more likely than external students to engage in behaviors which maximize their chances for classroom success. Rotter (1966) reports only low correlations between I-E and intellectual measures, therefore it is highly improbable that internals were any brighter than externals. It should be emphasized that both tests provided "natural" rather than "laboratory" data. There was no manipulation whatsoever in either test, perhaps reducing the probability for significant results, but also providing evidence which supplements laboratory findings. As in other studies described earlier, it is evidence of people helping themselves in important life situations.

Specifically, we suggest that the data provides an important indication of how the belief in internal vs. external control can influence a student's basic approach to his studies, as well as his actual control of the progression of his studies over the course of a term. A further check on our data failed to demonstrate any significant difference between internals and externals in their final number of experimental hours at the end of the term.

Thus it becomes clear that during the last two weeks of the term relatively more externals are participating in experiments than are internals. Late participants fall, basically, into two groups. First, there are those who must obtain the credits they need or want before the term is over. These students often play the game of finding experiments which offer an hour's credit for very short periods of participation. This is at best a hit or miss affair. Second, there are those students who show no great initiative to sign up for experiments on their own, being content to finish the term with two or three hours credit, just enough to pass the course. These students, however, do not plan on the fact that experimenters, who have rather long procedures and cannot attract students in the first group to sign up for their experiments, start calling up prospective subjects over the phone, trying to coax them to participate in their less popular procedures. With fewer hours to their credit, these students find it more difficult to parry the calls of needy experimenters than students who have already accumulated four or five hours credit. In the end, many participate in experiments, even though they had no real intention of doing so. As events transpire, students falling into either late participant group have relatively poor control over how their time will be spent during the last two weeks of the term.

The students who have accumulated four or five credits before the last two weeks of the term can have better control of their study time. They have no need to seek short experiments,

and they can easily handle experimenters who call them up by simply telling them that maximal or near-maximal credit has already been obtained. Instead, these students can concentrate on other activities which are more profitable at the end of the term, such as finishing papers and studying for finals. Our data indicates that internals are more likely to fall into this group of students than are externals. Moreover, as Test 2 demonstrates,more internals than externals have been participating in the day-to-day discussion of class material, hopefully strengthening their grasp of this material, and consequently reducing their need to cram for finals. At the very least, they have augmented their chance for a good recitation grade, if their graduate assistant chooses to take into account class participation in his grading procedure. On the whole, the internal's approach to introductory psychology appears to be oriented from the start toward behaviors which promote success. The external, on the other hand, appears to be more likely to leave his success in the hands of uncertain occurrences.

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Footnotes

1. It should be noted that the strength of this relationship is actually stronger than the strength of relationship demonstrated in Table 1, although the existence of the latter relationship is stated with greater confidence. This is due to the fact that the sample size in Test 2 is much smaller than that of Test 1. Using Pearson's corrected contingency coefficient C, (Blalock, 1960) we find that the actual strength of relationship for Test 1 attains a coefficient value C=.149, while Test 2 attains a coefficient value C=.204.

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Table 1

Number of Internals and Externals Demonstrating High and Low Participation in Experiments as of May 2

Condition	High Participation	Low Participation
Internals	134	113
Externals	110	142
	$\chi^2=5.61$, $p<.02$	

Table 2

Number of Internals and Externals Rated by their Teachers as High or Low Class Participants

Condition	High Participants	Low Participants
Internals	53	36
Externals	36	44
	$\chi^2=3.58$, $p<.07$	